

# JOURNAL

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1904

Benjamin Bailey

pah zan

Zaos names

Cua <sup>black</sup> puma) kana - black bear

Cua <sup>gray</sup> pehtzya) kana - grizzly

(Izka) <sup>wood</sup> cuna - clump trees

Quawa pawawa - spruce rabbit, L. birch

uptutula

1904

July 4.

Left Washington at 10:05 A.M.  
By P. for New Mex. & got  
well over the mts. & down toward  
the Ohio line before dark.

Was surprised to find most of  
the wheat & rye (winter varieties) <sup>up</sup> cut & shocked. In the valley just above  
Cumberland they were reaping. The day  
was fairly warm before we entered  
the mts. but as we reached the summit  
of the range the air was cool, fresh  
& bracing, the country had a spring  
like appearance, the big laurel was  
full of blossoms. Beautiful meadows,  
streams & springs, open woods and  
hemlock groves made us want  
to stop and pitch a tent.

We looked for good camp  
grounds & decided on one 5 or 6  
miles east of Deer Park &  
another about as far west of  
Oakland. These are wild  
spots that would be a lot  
of exploring & study.



July 5. Woke up in southern Indiana & reached St. Louis at noon. Across southern Indiana & Illinois the season is more advanced than at Washington. The *Lycium radicans* are abundant all along on the fences & in full bloom while our vine at home has only small buds that will not open for a week at least & none were seen in blossom east of the mts. The wheat & rye are all in shock & have been for a long time. Corn & other crops are in advance of those around Washington as they should be.

Went out to Exposition in P.M. & especially enjoyed the Philippine exhibit.

Left for Kansas City at 10 P.M. via Mo. Pac.

## Kansas

July 6. Reached Kansas City at 8 AM. on Mo. Pac. & left at 9:45 on Santa Fe for Pueblo. The Kaw River is over its banks & full of floating drift. lots of fields flooded. All streams & ponds full. Country green & rich but crops show effects of too much water.

No trace of Lower Sonoran plants noticed near Kansas City or beyond. Westward the woods soon retreat to narrow fringes of low trees along streams mostly box elders, cottonwood, elm, low oaks<sup>oaks</sup> & alders. Near Burlingame we heard a bluejay. & west of Osage City heard two meadowlark songs that from the train seemed to be neglects.

West of Osage City the country becomes more plains, & is characterized by lots of plains species of plants, *Petalostemon* idace, *Amorpha canescens*, *Psoralea (argophylla)*, *asclepias*, *Merolix* etc.

West of Emporia we follow up the Cottonwood River which is out over

the valley. Ranches & towns are flooded, grain fields are big lakes houses up to the windows in water & an whole town standing in 4 to 6 feet of water. For miles our train flows through water nearly over the wheels sending great waves off on the sides & leaving a long wake behind where no track is visible.

At Elmdale a mockingbird was singing.

Until dark we continued to cross flooded bottoms with water over the tracks.



## To Pueblo

July 7. Reached La Junta soon after daylight + Pueblo about 7 A.M. got some good notes on plants between the towns + around Pueblo where we have to stay till 12:20 tonight for a train on D. & R.G. to Las Alamos.

The country around Pueblo is very arid but the river valley is irrigated + covered with farms of alfalfa, corn, fruit etc. Apple + cherry trees are loaded with fruit.

Out on the ridge just east of town the country is arid + desert like with *Atriplex canescens* + *confertifolia* the dominant shrubs over one slope, *Opuntia arborescens* over another, or *Sarcobatus* over dry bottoms.

The mts lie off to the west of town but on a long ridge to the N.E. ~~are~~ is black timber, probably nut pine or juniper.

A lot of birds were found in the little park where water was running from the hydrants.

Saw one *Callipepla squamata*.

to Taos

July 8. Woke up before daylight just before going over La Vita Pass & watched every change as soon as light enough. Reached the pass about sunrise.

Passed through oak & nut pine foot hills then yellow pine & at summit were in *Pinus murrayana*, firs & spruces & aspens. Steep slopes, half timbered, some big meadows & parks, small streams, no ranches, good camp grounds. summit 9242 feet, cold.

Down west slope the same kind of country but gentler slopes, long canyons, oak brush & timber.

Canadian zone covers the summit of the pass & while penetrated by strips of transition on hot slopes a strip 20 miles wide along the crest of range can be mapped as Canadian.

Transition zone covers the sides of the range irregularly and before the open valley begins it is all Upper Sonoran. Ft. Garland is near the eastern edge of the valley but out in the



open flat bottom on a level with  
the whole San Louis Valley, which  
is an enormous arid plain over  
a lake bed. At Alamosa we crossed  
the nearly dry bed of the Rio Grande  
and turned south on the Narrow  
Gauge to Antonito, then transferred  
to the mixed train for Tres Piedras.

The San Louis Valley is  
all Upper Sonoran, very arid,  
and now very dry & barren save  
for irrigated areas mainly around  
the edges where streams come  
down from the mountains.  
The Rio Grande runs through the  
valley to the south but the valley  
floor slopes down to the north.  
The highest part of the valley, or  
its southern rim is just south  
of the New Mex. line, where a series  
of old lava craters reach  
across & lava flows have  
built up a dam that has  
evidently held the water in a  
great lake but through which

The Rio Grande has cut a <sup>deep</sup> canyon with stratified lava walls. This canyon reaches from the Colorado line to Embuda & is from a few hundred to 1000 feet deep.

The principal vegetation of the San Luis Valley is *Artemisia tridentata*, *Bigelovia canescens*?, *Tetradymia*, *Gutierrezia*, *Sarcobatus* & cacti, a little white spined *Opuntia*.

Along the N.E. side of the valley the Sangre de Cristo Mts. rise high & bare & white & steep. I never saw a more utterly barren range, that reached so high. Oak brush & scrubby stuff seems to cover the base, but the upper slopes that should be timbered are bare slide rock. On the east the Spanish peaks in the Colihra Range are not so high. The San Juan Range west of the valley is apparently low & mainly timbered.

Ute Peak is a big crater south of the Colorado line over the east base of which we pass on the narrow



gague. It is rounded + mainly  
timbered with nut pine around the  
base, then a belt of yellow pine + high  
up on the N.E. side a considerable  
area of aspen + spruces. This  
is the largest of half a dozen similar  
springs in this part of the valley.  
Olla Peak just west of the Rio Grande  
is very similar + black to the base  
with timber, apparently from a distance  
both nut pine + yellow pine.

In San Juan Valley we saw  
4 or 5 *Lepus campestris* but no  
*texianus* + no one I could find  
had seen a black tailed jack rabbit.  
One ranchman told me of a few  
antelope in the valley yet, but says  
they are scarce. *Cynomys gunnisoni*  
is common.

Reached Teah Piedades at 12 +  
started for Taos at 1 P.M. arriving  
at 7 P.M. The valley is very  
dry + barren. No rain, no grass,  
no crops, very little water in Rio  
franklin + Hondo.



## Zas

July 9. Moved over to Mr. Phillips house + went out to Martinez place to look at my horses. Found them in good condition.

July 10, Sunday. Did not get much done, as Surber is not here yet + none of my supplies have come. Went out to Pueblo.

July 11. Hired an Indian, Sam Elk, and got my outfit together + moved up into the canyon  $2\frac{1}{2}$  miles above the Pueblo + camped in the big grove of *Populus Angustifolia* called Glorieta. Camped late but were glad to get away from town.

July 12. Took most of the day to get camp straightened out + get the wagons repaired + in shape for travelling.

July 13. - Sent the other wagon down to be repaired + got mail. Wrote letters + did things around camp.

July 14, Took a trip over valley  
for birds & got quite a lot of  
specimens. Wrote some but am  
half sick not very energetic.

July 15 - Climbed over the slopes  
above camp, made up skins,  
wrote up notes & set traps.

July 17 Took an Indian, Manuel,  
and went up the Mts., following up  
to head of Lacerro Creek at as it  
comes out of Bear Lake at 12000 feet,  
then over the ridge above timberline  
overlooking the Indian's lake, from a  
point at 12700 feet, then down to  
Pueblo Creek and down it to camp.  
A hard days ride over glorious  
country with good notes along 2  
lines of the mountain slope.

July 18, Sunday, Made up specimens  
& wrote up notes.



to Hondo & Taos Mts.

July 19, Packed up + went to Taos for supplies + then over to Arroyo Seco + the Hondo. Camped 2 miles up the Hondo Canyon. After leaving the Indian grant sheep have made the valley a desert. The crops at Arroyo Seco + the Hondo are pretty good.

July 20. Continued up the Hondo Canyon to Twining where we left our wagons + heavy outfit + put our loads on 4 pack horses continued up the South Fork, or Lake Fork to the little lake at head of canyon about 5 miles south of Twining. Camped 100 feet above the lake on ridge at 11200 feet by aneroid. Twining read 9500, but it reads low today.

July 21. Climbed to top of Wheeler Peak as called here, but Taos Peak of the land office map, which rises from east edge of our little lake. Aneroid at camp read 11200, at timberline 12000 + on peak 13500. Another peak just



north of Blue Lake, head of Pueblo Creek, & 2 miles S.E. of Wheeler Peak seemed to be about as high so we went to it & found it 13400. Wheeler Peak or Taos Peak, is evidently the highest peak in the range & the highest in New Mexico. It has gentle, mainly grassy slopes & a horse can be ridden to the top & along the whole crest of the range. The peak to the south of the highest should probably be called Taos Peak as it is the highest one overlooking the lake of the Taos Indians. We hunted the high slopes for Ptarmigan but found none. It rained & hailed while we were on the peaks so we had little chance of finding things. My hands got so cold I could not write plant names in my book.

Two large flocks of sheep are herded in the head of Red River canyon on the east side of Wheeler Peak. They were run out of Sacorro Creek canyon by the Indians.

July 22 - Sent Sam Elk down to Amigitt for mail & while he was gone explored the upper end of the canyon around the meadows above the lake. In P.M. moved camp to falls at south end of lake. Rainy & cold part of day.

July 23 - Sent Sam Elk & his cousin over ridge for Ptarmigan. They got one & saw 2 more. Made up skins, set traps, made plant list. Cold in morning, hard frost, cold rain after noon.

July 24, Sunday, Too cold & rainy to do much but try to trap warm.

July 25 - Sent Sam Elk & Taos for guns & grub. We climbed to top of Wheeler peak & followed miles along crest of range in search of Ptarmigan without success. Got a fine set of plant notes with limits of range. Set a line of traps up to 12700 feet or 300 feet above extreme timberline.



## Laos Mts.

July 26 - Went to traps + climbed over upper slopes but did not get much of importance. Sun Elk returned just before dark with my old shot gun.

July 27 - Looked up line of high up traps as the *Peromyscus* proved to be only *Microtus mordax* & the woodchucks got into my fox trap so fast the fox has no show.

July 28 Climbed to top of ridge just east of Wheeler Peak + followed crest of ridge to top of next peak east (Red dirt Mtn. - *Quito pum na nana*) then over the peak + along its ridge to the peak N. E. of the Blue Lake. Found a flock of *Leucosticte australis* & shot one, but could find no *Pterinopus*. The clouds covered the Mts. most of day + half the time I could not see far. Often I was in a dense cloud. Toward noon the clouds cleared for awhile + I had a grand view of the Mts. north + south. The Spanish Peaks + Sangre de Cristo.



+ Castilla Peak to the north, the  
Tucacas + Pecos Baldy groups to the  
south, the Rotons away to the N.E.  
+ several ranges to the west of the  
Rio Grande. The Blue Lake of the  
Tasos Indians was brilliant when  
the clouds lifted, deep turquoise blue  
varying with different lights to brilliant  
emerald green around the edges.  
It is very deep + beautifully set  
in the Hudsonian forest just below  
timberline.

Several showers came up just  
after noon + I got soaked in ice water on  
the peaks. Numerous local showers  
could be seen on all sides, some  
crossing the arid valleys where rain  
is much needed.

Slid down the Mtns. + returned to  
camp at 2 P.M. tired + wet + hungry  
but with a good lot of notes on  
distribution + general character  
of country.

## Laos Mts.

Aug. 2. Packed up & moved camp down to the meadow only 2 miles above Twinning and at 10800 feet. Here the canyon slopes north with steep slopes about 2000 feet high on each side, so the bottom is practically a N.E. slope. Most of the plants of the meadow are Hudsonian species. So are many of those of the woods, while on the slope east of us where it turns toward the south west the aspens run 500 feet at least above us. In the bottom of the gulches they do not come up to 500 feet below.

Aug. 3. Set traps near camp but it rained so much of the day I could not do much.

Aug. 4. Goat arrived in evening

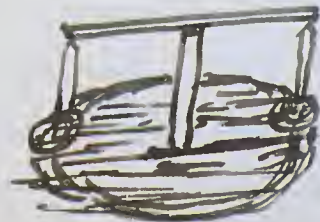
Aug. 5 - Sent Sam Elk to Arroyo Seco for supplies



## Twining

Aug. 6. Went down to Twining and then up the main Hondo and to top of ridge above Sawmill & over ridge a little way on trail leading down to Red River. A good wagon road runs to summit. The sawmill is at 11100 feet, the summit half a mile beyond is 11200. This is not a main divide and it is said to be a little higher than the summit between Red R. & Morro Valley, which forms the main divide. This summit is merely a saddle between Gold Hill & Wheeler Peak. It is heavily timbered with a mixture of Canadian & Hudsonian trees & plants. *Aspens* do not reach up to it, and *Pinus aristata* comes down to 11000 on the S.W. slope.

Saw an old fashioned crania on the way up to saw mill. Intended to photograph it on my way back but forgot to -





## Hondo Canyon

Aug. 8. Broke camp + packed down to Twining, then loaded up wagon + continued down canyon to old saw mill near lower end + camped at about 2 or 3 miles above Toll gate. Aneroid at Meadow Camp read 10700, at Twining 9850, at old saw mill camp 8350.

Aug. 9. Took the team + went down the Hondo for hay + grub. Went through the little Mexican town of Valdez and to a ranch 2 or 3 miles west of Arroyo Seco where we found potatoes, beets, cabbage + lettuce, + such green food that we were hungry for + also found fruit trees growing + learned something of the crops + climate as well as getting a list of valley birds + some good mammal notes. Aneroid at camp read 8150, at Toll gate 7900.

## Hondo Valley

Aug. 10. Remained at camp in canyon at old saw mill.

Aug. 11 - Broke camp & went down to toll house at mouth of canyon & camped for the night just below it. Hunted in the Hondo bottoms for a mile or two below camp, down among the farms. Found *Castilleja*, *Gilia*, *Pentstemon*, *Lupines*, & *Helianthus* flowering in great profusion and the humming birds swarming over them, Brilliant male *rufus* were the most numerous but *Sitta caliope* were common.

The farms are in little squares like a checker board, running across the bottoms on both sides of the Hondo. Wheat, corn, and peas are the common crops but oats, barley, potatoes, squashes, cabbage, onions, lettuce, and beets are raised. Lots of apples are raised & the trees are thrifty & bear well. Plums are raised & seem to be the big blue plum. Pears & some peaches are said to be raised & we saw a few cherry trees.



Hops grow in wild profusion over the bushes & are loaded with fruit. Choke-cherries are abundant & just ripening & the trees are full of robins & cedarbirds. *Ribes leptanthum* grows in great clumps & hedge rows & is loaded with ripe fruit that is delicious if you risk the thorns in getting it. The people do not seem to use them much & only the birds pick them extensively.

The Mexicans live in little adobe houses in as primitive a style as could be imagined, irrigating their little fields & living apparently on what they can raise. Their yards are usually full of hollyhocks, poppies, marigolds & such homely flowers.

In the middle of the valley is the little old town of Valdez - long called San Antonio, as typically Oriental a village as could be found in the heart of Mexico.

The mesa along the sides of the river valley is 300 or 400 feet above.



## To Questa

Aug. 12.

Moved camp down the river about 4 miles and camped on top of plain at south edge of Horse Valley. Toll gate camp 7900 feet, Valdez 7700, camp on mesa 8000.

Took Sam Elk & went over to Taos for supplies & to send specimens. We are about 10 miles nearly due North of Taos.

Aug. 13 — Remained at camp, hunting & trapping in river valley & out over plain.

Aug. 14 — Broke camp & followed down the river about 2 miles to crossing where an old brewery used to be kept by a Frenchman who was killed by the Indians at the same time as Governor Beaubien. Then followed up a long dry wash to the north to Agua Lobo, then down to San Cristobal, then up again to Lama, then down to near the Red River between the north & Questa. Came about 20 or 25 miles through

juniper & yellow pine country, open woods with good grass but little water. The 3 settlements mentioned were all we saw.

At camp the aneroid read 8000, at the Hondo River 7400, at Pena de Lobo 8500, at San Cristobal 8100, at Lamy 8800, camp near Red River 8000.

The whole country north of the Hondo & east of the Rio Grande is covered with either yellow pine, mainly on N.E. slopes or above 8500 feet on S.W. slopes, or a fine growth of Nut pine & juniper, including both species of juniper. The timber also extends along both sides of the Red River valley, but open plain stretch north from near Questa. On the west side of the Rio Grande the numerous craters & lava ridges are all timbered with yellow pine or nut pine which covers more than half of the country. The open valley strips are arid sage plains that wind around the buttes. The Rio Grande Canyon is all



## To Questa

timbered with nut pines & junipers, well  
back of over the lava rock rim.  
The creek at San Cristobal runs a  
little ditch full of good water that  
keeps a narrow line of little ranches  
green.

Camped at a spring 200 feet  
above Red River among beautiful junipers  
& big yellow pines. Good grama  
grass covers the ground & furnishes  
fine feed for the horses. Near the  
settlements the grass has been  
mainly killed out by over grazing,  
but the scarcity of water protects  
it farther back.

Aug. 15. Struck Red R. about a mile  
from camp & then followed up  
the valley about 2 miles to Questa.  
Then about 3 miles farther up into  
the mouth of the Red River Canyon  
& camped.

Aneroid at Camp 8050, at Red R.  
7850, at Questa 8100, at Camp 8200.  
Came about 5 miles.

## To Red River town

Aug. 16 - Continued up the beautiful canyon to the little mining town of Red River where we got a good dinner + then followed up Bitter Creek about 6 miles to the fork + then up Lost Trail Creek about 2 miles farther + camped in a little park in the aspens at 10700 feet. The last 2 miles of the road was very steep + stony + wet + slippery from a hard shower, so the team was about worn out when we reached camp at 6 P.M.

Barometer at camp in morning read 8200, at Red River town 9250, mouth of South Fork 8500, Camp 10700.

Upper Sonoran zone reaches up on S.W. slopes to 8500 feet + a few nut pine + junipers straggles up farther. On N.E. slopes it does not run above about 7800 feet.

Transition zone begins on N.E. slopes + in bottom of valley along streams at about 7800 feet near the mouth of the Red River. *Populus angustifolia* grows along the streams + yellow pine comes



down along ~~the~~ cold slopes to  
the Rio Grande. Up the canyon yellow  
pine extends to about 9000 feet on S.W.  
slopes but *Pseudotsuga* + *Pinus flexilis*  
reach to 10000 S.W. in abundance.

The <sup>upper</sup> slopes of the canyon become to  
stony + rough for *ponderosa*.

The town of Red River is in a mixture  
of Canadian + Transition.

Canadian zone - comes down  
in the canyon on steep N.E. slopes +  
quakes to about 8500 feet - a trace to  
5200, but begins on S.W. slopes at  
about 10000 feet.

Hudsonian zone shows a trace  
over summit at Anchor mine at  
11000 feet in meadows + on cold slopes.

The whole Red River valley is heavily  
forested except when the bottom widens  
out into meadows + fields and  
where the slopes have been burnt.  
Much of the timber is valuable for  
lumber + young forest is rapidly  
covering the burns.

*Pinus flexilis* deserves special  
mention from its abundance +

good size. For miles both along  
the stony + barren sides of the valley  
it is the dominant tree and often  
with a trunk  $1\frac{1}{2}$  to 2 feet in diameter  
that would cut 2 good 16 foot logs  
not very limby. It takes the place  
of ponderosa in the rougher part  
of transition zone. Pseudotsuga  
also is abundant all up the valley  
and a few trees straggle up to  
10500 feet on S.W. slopes.

Populus tremuloides is probably the  
most numerous tree in individuals  
+ often forms beautiful groves  
of trees 8 inches to a foot in diameter  
while many trees could be selected  
2 feet in diameter that would cut  
3 good logs above a foot in diameter  
at top. Much of the original forest  
has been burnt out and great areas  
stand dead + bare with the bark  
dropping from the hard trunks of  
the vast like spruces + firs.

In places fir has run up the steep  
slopes in narrow strips, leaving  
pools between the solid black green.



Anchor Mine & to Castilla River

Aug. 17 - Remained at our aspen park camp to do some work & let the roads dry so we can get up the rest of steep slope to summit. Went up to Anchor mine & back to sign up the country. Concluded we had better push on to the Castilla Park country tomorrow.

Aug. 18 - Fortunately there was no rain in the night & the roads were in good shape. Put both teams on the load & hauled it to top of the steep slope, a mile & a half, & then went back for the buggy. Zipped the load over on a side hill but it fortunately struck & tire went only on the side, the only damage was a broken back tire. Hauled it back with the team & a rope & continued up the hill.

On top of the first ridge at the Anchor mine, where the country opens out in big meadows & grassy parks at 11,500 feet we strongly tempted to camp for a few days & work toward the head of Bitter Creek to the west where we could

timberline slopes on Zatis Peak.  
A little run through the woods showed  
abundant signs of deer & snowshoe  
rabbits & blue grouse, there are said  
to be a good many black bears, the  
stream is full of trout, strawberries  
are ripe & very abundant, all of  
which, with the combination of the  
big parks & meadows bordered by  
beautiful forests & full of creeks  
& springs made a tempting combination.  
Still we thought it best to get  
over the main divide & into the  
Castilla country.

After leaving the Anchor Mine  
we climbed another long ridge,  
the divide between the waters of Red  
R. & Castilla R., up an easy grade  
through a forest of dead spruces  
to the summit at 11350 feet, where  
we had a magnificent view of the  
Tasas Mts. from the north side.  
Whaler peak & Red earth peak  
with high rocky peaks to right &  
left made a striking display while  
Gold Hill with its big N.E. are is a



fine peak by itself. The view is up  
the South Fork of Red River & over  
some 20 or 25 miles of finely  
forested country.

~~Gold~~ Baldy looms up bare &  
bald as well to the S.E. of us &  
apparently not 25 miles away.  
To the North a peak reaching only  
a little above timberline must be the  
Castilla Peak of the land office map  
but Sam Elk thinks it is Ponill peak  
& that Castilla is the higher group  
west of the north arm of Castilla  
River.

From the summit we go down  
a long easy grade to Labelle  
at 10100 feet at the edge of the big, open  
park valley of Cowanoke Creek where  
we strike the Elizabethton & Castilian  
road. A few miles to the west we  
strike the Cowanoke Creek & at  
9700 feet and follow down it to the  
west & about 5 miles to Castilla  
R. at 9400 feet, then up the river  
a mile or two & a quarter of a mile up  
a side gulch & camp at 9700 feet.

The Comanche + Castilla valleys are wide, grassy park like valleys with here + there a grove or point of timber coming down on the side/slopes. They afford fine summer ranges for cattle + sheep. We in the Sangre de Cristo Grant + evidently are leased or rented to mainly non resident stockmen. We saw a few sheep camps but no ranches. A few old abandoned ranches mark the places where early settlers were driven out of the grant. One old saw mill above the mouth of Comanche Creek was abandoned with a big pile of logs left unsawed.

The timber along the sides of the valley is mainly *Picea pungens* and *Aspens*, but a few *Pseudotsugas* were seen and on rocky slopes *Pinus aristata* comes down close to the creek + river. The valleys are mainly Canadian zone but probably carry a trace of transition.

*Cynomys gunnisoni* are abundant and badger holes + *Thomomys* furrow mounds common.



## Up Castilla R.

Aug. 19. Sam Elk killed a fine big coyote - apparently a Canis latrans, which had its stomach full of fresh mutton including wool & bones. The bones were well ground tho in pieces as big as peach pits. The lower intestines were full of feces that looked like clay but were really largely bone dust. There were sharp ticks on the coyote which was an old male in good condition & good red summer pelage. Before skinning I lifted & estimated his weight at 40 lbs. He was not fat.

We got a late start and followed up the Castilla valley mainly north for 10 or 12 miles to the wide part of the valley east of the Culbra Peak and nearly due north of Castilla Peak. The valley is open & park like all the way, varying from a mile to 5 or 6 miles wide between the strips of timber coming down the sides. The slopes above are not very steep & either heavily timbered or grassy & park like.

Aspens + piceas form the bulk of the timber but a few *Pseudotsugas* were seen + lots of *Pinus aristata* on all rocky slopes.

The valley is not over stocked. Grass is fine, there are no ranches except 2 or 3 little Mexican places. Most of the stock seen was a few bands of sheep.

Camped 100 or 200 feet above valley in a side park under an aspen grove.

Arrived at starting 10700, at camp 10300

A hard frost in morning, not in forenoon, cold + showery toward night.

Lots of people are camped in the upper end of Costilla Valley fishing.



Top Culbaca Mts.

Aug. 20 - Gant & I took our horses and rode up the trail to about timberline then walked to crest of range and followed around to top of highest peak in the Culbacas, by some called Castilla Peak, but not the Castilla Peak of the maps. It is the southern point of the Culbaca range where it is encircled by the Castilla River.

Our aneroids read at camp mine 10700, Gant's 10500 feet on starting & they read on the peak ~~the mine~~ 13400 Gant's 13650. This is the highest peak south of Spanish Peaks until Wheeler Peak rises 100 feet above it. By looking across to Castilla Peak (generally known here as Little Castilla, or Cuervo Peak) we seem to be about 100 feet above it.

The Culbaca Mts. are a well defined range by themselves, separated from the Cimarrons by the Castilla & Grand valleys. The Cabrestos are a small bunch lying between the Castilla & Red Rivers and belonging with the Taos Mts. if with anything. From the peaks we had a grand view of the Taos Mts, Cimarrons.

on the south, the Spanish Peaks &  
Sangre de Cristo on the north, ~~the~~  
the Raton ~~the~~ Sierra Grande away to  
the east, and endless numbers of  
craters over the plains to the west.

This southern end of the Sangre de  
Cubra range is a wide topped mass with  
usually one escarpment and broad  
slopes. You can ride all over the top,  
including the highest peaks, & over  
miles of grassy plain nearly 1000  
feet above timberline. In fact they are  
so open & accessible that herds of  
sheep have swept them almost bare of  
vegetation. The peaks are long  
swells with stony & sodded surface.  
The escarpments are mainly N. & E.  
on this part of the range with little  
lakes & meadows at their base  
near timberline. In one place at  
13300 a big snowbank still remains.

Streams & springs come out  
around the base of the peaks & at the  
present time rain pools fill the  
depressions over the upper slopes.  
The side slopes of the range are



thickly timbered except where burned off. in  
Aspens form a large part of the Canadian  
zone timber, *Pinus aristata* is abundant  
in Hudsonian with *Picea engelmannii* &  
*Abies lasiocarpa* (or *arizonica*), but it also  
grows on exposed rocky or barren gravelly  
soil lower down in the valley.

The whole set of alpine & Hudsonian zone  
plants occurs on top of the range - same  
as in the Taos Mts. but fire & sheep have  
played the mischief with zone plants  
as well as rare species.

See note book for list of plants on top.

If our aneroids are reading correctly  
timberline is steadily increasing in height  
to the north, being near 12600 on S.E.  
slope and 12800 on S.W. as an extreme  
limit. This may be due to error in  
barometer readings or to increase of  
base level. The big valley on the east  
of the range lying from 9400 to 10700  
feet & the San Louis valley on the west  
at a high level.

## Down to Beaver Camp

Aug. 21 - Followed down Costilla River to just above the narrows, a deep impassable canyon and camped at 9500 feet at a little spring creek in a side gulch, 100 feet above the river. A colony of beaver with several big dams & ponds & houses was the immediate cause of our camping. Came about 15 miles down the river and about 5 miles below the mouth of Comanche Creek & Gibraltar rock. All the way down beautiful valleys with grassy sides & bottoms but no settlements.

Began to strike traces of Transition zone at mouth of Comanche Creek on S.W. slopes and at our camp were fairly in Transition with yellow pines, flexilis, & Douglas spruce over open S.W. slopes to 500 feet above us. Still *Pinus aristata* is abundant on rocky slopes with flexilis & ponderosa. I can't account for it unless this proves to be another form - possibly *belpuriana*.



## To Castillo

Aug. 22+23. Remained at camp studying + photographing beaver.

Aug. 24 - Started down toward Costilla in P.M. Continued down the river a mile to mouth of Latis Creek, then up it a mile + over a high ridge to get around the Canyon - The Narrows - then down to the Castilla valley below the canyon where the good ranches are. Averoid at camp 9850, at mouth of Latis Cr. 9350, top of ridge 10300, River below canyon 9000, Camp a mile down valley 9000.

Upper Sonoran zone comes up to 9300 on S.W. slopes in canyon below the Narrows + is marked by nut pine both species of juniper, *Bigelovia*, *Artemisia tridentata*, *Helianthus annuus*, *Ribes leptanthum*, *Rhus aromatica*.

The little farms along the river valley raise good crops of hay, oats, wheat, corn, peas, + vegetables. They are all Mexicans + the adobe houses seen a part of the picturesque canyon. *Populus angustifolia* forms beautiful groves + strips of timber.

To Antonito.

Aug. 25. Followed down the Castilla canyon 8 miles to Castilla town, then west to Rio Grande and 3 miles beyond, where we made a dry camp on the plains between two lava buttes. Aneroid at camp 9050, at Castilla 8500, at Rio Grande 8100, at camp 8300. Came about 30 miles. Good road & mostly down grade.

Castilla is at the edge of the valley and is a typical Mexican settlement & town, spread out for 2 or 3 miles, with a plaza & store & church at each end of the settlement. Most or all of the water of the Castilla river is used for irrigation. Groves of *Populus angustifolia* beautify the valley but along the streams but otherwise it is a desert, sagebrush valley stretching west as far as the San Juan Mts. except for numerous craters & lava buttes which are black with nut pine, juniper & the higher ones with yellow pine & aspens.

The valley is level, mellow soiled & pure Upper Sonoran zone.



near the mouth of Castilla R. we passed through the little Mormon town of Eastdals, rather a nice settlement as far as we could judge in a pouring rain. Then on 7 miles farther west we crossed the Rio Grande Canyon - the very upper end of it, on a fine iron bridge of 3 spans from rim to rim, about 75 ft above the water. The canyon is cut through solid lava beds.

To the west lava buttes & craters form a series parallel with the river & we made a dry camp in a gap of this series 3 or 4 miles west of the river, close to the little flat topped black butte on which the Utes killed about 20 Cheyennes many years ago.

Sam Elk knew about it & asked a Mexican which butte it was & found it was the one closest to our camp.

The Cheyennes got drunk at a Mexican saloon at Castilla & started for the Ute camp on the Conchos to steal horses. They were discovered, chased back to this butte where they held this over for a good while but were finally overcome & all but

## To Antonio

one killed. One was left to tell his people about it. Sun Elk remembers the scalp dance the Utes had to celebrate the event at the Taos Pueblo a short time after. & he sang the war song of the Cheyennes to us - those they sang up to their death. The Utes took the song with the scalps as the spoils of war & the Taos Indians learned it from the Utes. As Sun Elk sang it to us after dark in the tent, beating his breast like a drum, it had all the wild battle ring combined with the mournful death chant.

Aug. 24. Continued westward about 6 miles across gently sloping arid plains to the first ranches along the San Antonio Creek. Thence for 7 miles across level plains among the ranches to Antonio. Then after getting supplies & a hotel dinner returned about 3 miles & camped on the open, level plain with good grass & a glorious view but no wood & only ditch water nearby.



Antoinito

Aug. 24 to 30

Remained at our plains camp trapping for small stuff, but a hard rain every afternoon has hindered the trapping. However we have taken *Onychomys*, *Peromyscus sonoriensis*, *Mus musculus*, *Microtus agrestis*, *Perognathus*, *Perodipus montanus*, *Thomomys*, *Spermophilus 13lineatus*, *Zapus*, *Lepus campestris*.

There are lots of *Cynomys gunnisoni*, some badgers & coyotes in the valley.

The flat plain where we are camped is smooth & level with a carpet of short grama grass. In places there is a little *Bigelovia* & *Gutierrezia* & patches of cactus (*Opuntia polyacantha*).

The farms run along the stream & ditch courses & have lots of trees & meadows as well as good fields, but the mesquites are so thick in the woods we did not camp there.

To Alamosa & Del Norte

Aug. 30 - Took a 7 o'clock train for Alamosa & had to stay there over night. Stopped at the Victoria Hotel & found it excellent.

Aug. 31 - Took a 7 o'clock A.M. train for Del Norte & reached there at 9. Went to Windsor Hotel & then tramped over the hills till noon. In P.M. got a horse & buggy & drove up the valley 3 miles west & set traps for *Rhithrodontomys*.

The Rio Grande Valley closes in about 25 or 30 miles above Del Norte but to that point it is a beautiful, wide, farming valley full of good farms, big ditches, fruit trees, & nice homes & towns.

Upper Sonoran zone covers the valley & well up the side slopes all around. Juniper & nut pine form a belt over the foothills upon below *Pinus ponderosa*.

Then the open valley is covered with *Begonia canescens* & *Astragalus*, *Gutierrezia*, *Atriplex canescens*.



Del Norte

*Sarcobatus vermiculatus*, *Opuntia*  
*polycantha*, *Helianthus annuus*,  
*Helianthella*, *Gudelia*, etc.  
For lists see vol. book.

Sept. 1. Caught a lot of *Microtus*  
*aztecus*, *Peromyscus sonoriensis*,  
*Eutamias quadri vittatus*, a *Mus musculus*,  
+ one *Rhithodontomys*. Saw several  
*Lepus pinnatus*, tracks of *Coyote*, lots  
of *Cynomys gunnisoni*, + birds.  
Returned to Alamosa in  
evening + staid over night at the  
Victoria Hotel

Sept. 2. Returned to Antonio + met the  
boys coming in with the camp outfit  
about 6 miles east of town. Got  
supplies and followed up the Comjios  
River about 10 miles west of Antonio  
+ camped in the valley just before  
it narrows up to a canyon.  
To the north a lava escarpment rises 900  
feet above the ~~to~~ valley + back of this  
a fine double crest rises 700 feet  
higher. The escarpment shows 10

successive strata of lava flows from the top down to where the talus hides them. - See photo - The sheets are 20 to 50 feet thick & of a rough, basaltic formation. The ~~little~~ crater above has a wide old rim & a steep ~~cone~~ secondary cone in the middle.



On the south side of the river valley the slopes rise more gradually & are covered with timber of transition zone species and a few Canadian species toward the tops. Upper Sonoran zone covers the warm slopes of the valley & nut pine & juniper run to the top of the lava escarpment.

Our camp on the river bottom at 8300 feet is close to the edge of the cottonwood bottoms that follow the river.



Sept. 5 - Started early for Antuquito where we got mail & supplies & then took the road for Tierra Amarilla. Crossed stony lava plain in a S.W. direction for 12 miles & camped on the San Antuquito creek at ~~west~~ base of San Antonio mountain at 8700 feet. The creek is in a lava canyon. We camped on top of lava plain.

San Antonio Peak is a great lava crater in the form of a dome but with no apparent concavity. The base is barren but the upper half on the west side & most of the east side is covered with aspens with here & there a strip of spruces or firs. I could not make out any pines. The aspens have been burned & strips of dead timber show here & there & roads run up to them. There are apparently no ranches on or near the mountain & we could see no trace of water.

To the Tusas R.

Sept. 4 - Followed up the San Antonio Crude a few miles, then bore off to the S.W. up a long grassy valley & then south over a ridge covered with yellow pines, Douglas spruce, *Picea pungens*, *Abies concolor* + aspens. Then down into a long, open valley with good timber around the edges, then up over another ridge and down into the valley of the Tusas River & camped at the fork, a few miles above the P.O. of Tusaa. The country is all transition zone and about half timbered & half open. The valleys are covered with woods & here & there patches of good grass, but sheep have gone over it like a fire. There are no ranches on our whole days trip except a few sheep camps along the Tusas. The country would be fine for stock if not overgrazed & ruined.

The yellow pines are said to be full of *Sciurus aberti* usually, but this year there are no pine or spruce cones in this region & we could find no trace of the squirrels.



## To Hopewell

Sept. 7. Followed up a dry branch of  
Tusas R. about 6 miles to Hopewell,  
then turned north west and struck the  
head waters of the Brazos in about  
6 miles farther. Passed by half a mile  
from the Brazos lakes & went a  
mile beyond to head of a long, grassy  
valley & camped near some springs.  
Anemid at camp on Tusas R. 8450,  
at Hopewell 9700, on summit 10100,  
at camp 9800.

Mainly forested country with big  
grassy park like valleys, a few small  
creeks, lots of grassy springs.  
Up to Hopewell the south slopes are  
all transition zone with yellow pine  
& Douglas spruce, & *Abies concolor*,  
but from about 9000 feet the N.E.  
slopes are Canadian with aspens,  
*Picea engelmanni*, & *Abies lasiocarpa*.  
Below Hopewell the timber has been  
mainly burned over, but on the  
head waters of the Brazos are great  
stretchers of *Picea engelmanni* & *Abies*  
*lasiocarpa* forest that evidently could  
not be burned & still stands black.

beautiful with clean ground  
beneath the symmetrical trees,  
beautiful grassy parks and strips  
where you expect every minute to  
see elk or deer, but where you  
see only horses and cattle.  
One big flock of sheep ranges  
north of our camp but the open  
valley seems to be full of horses  
& cattle - all fat & frisky.  
The grass is excellent & not overgrazed.  
The spring water is perfect.

Sept. 8 Took saddle horses & rode  
south along the crest of the range for  
several miles through beautiful park  
& clean forest country, mainly above  
10000 feet. Could see all over the Clama  
& Tierra Anahuillo valleys & the big mts.  
beyond to the S.W. - a magnificent  
view over mesa, plateau, valley &  
bold ranges - mainly a forested  
country. Along the crest of the range  
we were above aspens with only *Picea  
muhlenbergii* & *Abies lasiocarpa*, the only  
3 trees of our level.



## Z. Tierra Amarilla

Sept. 9+10. Remained at camp, trapping  
+ taking photos + writing reports.  
Caught 14 *Microtus rams* in the big  
valley near camp. This is an addition  
to the New Mexico list of mammals.

Sept. 11. Started for Tierra Amarilla.

Crossed summit of range 3 miles west  
of camp, then came down rapidly  
over very stony + bad road till  
we reached the first benches at the  
beaver pond - from there down  
the roads were less steep + stony but  
still bad till we reached the bottom  
of valley below the big cliffs, where  
we began to travel rapidly over  
good roads + nearly level country.  
Camped near Ensenada about 3  
miles before reaching Tierra Amarilla.

Aneroid at camp read 10000,  
on summit 10500, at beaver pond  
where we lunched 9700, upper edge of  
transition zone on W. slope 9100,  
Camp 7700, Tierra Amarilla next  
morning 7650.

The north side of the Brazos

## Zierr Amaila

river is a canyon wall, the south side an open mountain slope. The road follows all the way down on the south side & we did not see the Brazos till we camped near its mouth. The north wall rises almost sheer <sup>in</sup> over 2000 feet of granite cliff, equalling if it does not exceed El Capitan. Many of the Yosemite cliffs in beauty & grandeur. The wall is cut in two bold headlands standing out like El Capitan & Half Dome, with beautifully fluted vertical cleavage. There is none of the real dome structure or arched cleavage but the cliffs have been carved by ice just as those of the Yosemite have.

On the way down we passed a little tule lake & out in the middle near open water found a fine old beaver house. It has long been abandoned & the top has been burned off but the mud around it is strewed with sticks cut by the beaver not many years ago. There were numerous other little meadows.



Transition zone begins at 9000 feet on west slopes & is marked by an unusually fine growth of yellow pine where it has not been cut for lumber, as it has along the bottom 5 miles up from Tierra Amarilla. The old ~~stump~~ ~~shows~~ marks the side of what has been an unusually good forest. *Quercus gambeli* & also fills transition zone & grows in extensive thickets over the slopes & ridges. *Populus angustifolia* extends up the streams to 8000 feet.

Along this side of the valley there seems to be little trace of Upper Sonoran zone. *Helianthus annuus* in the fields is almost the only representative plant.

There are no nut pines or junipers. Yellow pine strips extend out into the sagebrush valley on rocky ridges. The crops are mainly oats, wheat, peas, hay, & garden vegetables. Fruit is shipped in from the railroad or packed up from Espanola.

## To Boulder Lake

Sept. 14, Got mail & grub at Tierra Amarilla and started west for Boulder Lake (or Rock Lake as usually called) on the ~~the~~ Jicarilla Reservation. The Indians have their annual "fiesta" there tomorrow & as the agent will be there it is my simplest way to report to him for work on the reservation.

From Tierra Amarilla we cross about 2 miles of sagebrush valley before striking the Chama River. Then we soon strike into open yellow pine woods which continue 10 miles farther to where we strike the Chama River again near the saw mill where a mixture of Nut pine & juniper covers south slopes. Filled our keg at the river & then followed up a half dry, alkali incrustated arroyo 10 miles farther to Boulder Lake & camped. Aneroid at Tierra Amarilla read 7500, at the Chama R. 7200 and at the river near the sawmill 6950. At Camp near Boulder Lake 7300.

Most of the country is yellow pine transition with open sagebrush valleys between ridges.



Water & vegetation are scarce & poor. The country has been shepherded to death, but there is lots of good yellow pine timber.

Upper Sonoran zone comes in on south slopes all along the Chama River valley but not far back except to the west where nut pine & juniper cover hot slopes close to Boulder Lake. The rock is mainly sandstone which cuts out in flat topped mesas with sharp cliffs & steep slopes of talus. Coal crops out here & there between layers of shale.

Grass is good in places west of the Chama river but there are too many shrubs which keep the ground bare over much of the country. No good water.

Lots of *Cynomys gunnisoni*, *Thomomys* & *Citellus grammurus*, a few *Eutamias* & numerous migrating birds.

Boulder Lake is a shallow pond of saturated(?) alkaline solution, a mile long. The shores are wide & flat & muddy & look like snow.

Sept. 15. Jicarilla Fiesta

Near Boulder Lake we found about 1000 Indians camped for their annual fiesta - mainly Jicarilla Apaches with a few visiting Navajos, Utes, Santa Clara & San Ildefonso. The camp is scattered over half a mile of ridges & surrounding the racing & dancing ground & probably includes 100 tipis of all styles from the little one side shade wickiups



tall



tipis with smoke hole & flap at the top.

F. counted 71 tipis from one point & could not see nearly all.

This is the main day but the Indians have been dancing for 2 days past & it lasts all together about 4 days. On a tour of inspection at 9 A.M. among the tipis we found the Indians eating their breakfasts of boiled mutton or goat meat bread & melons or dressing & painting for the dances & races. At about 10 the chicken race began



+ the chicken served answered the purpose  
of a foot ball, the players being on  
horseback. The chicken was pulled & hauled  
~~until~~ used for a quint till it looked  
like an old dog. One horseman kept it  
until the others could get it away from  
him + they were often mixed in a heap of  
15 or 20 men + horses fighting over the  
dead chicken. This lasted half an hour,  
then the dancers began, the racers  
dancing from one end of the track  
to the other post each other. Then  
the racers began, a relay of about  
20 men on a side on a track I  
should say 300 yards long. The  
running, starting, whipping  
& all was similar to that of the Texas  
racers but an additional feature was  
men along the sides with pistols + Winchester  
shooting blank cartridges to hurry  
the runners. There were many good  
runners + some poor. Most of the  
men were finely built with narrow  
 chests + muscles + some were Apaches  
in form. The gee string + paint +  
eagle down formed part of the dress.

Black & buff & white were favorite body colors brightened up by face paint of diamond dyes & bright neckerchiefs or head dress & feathers. All ran barefooted. After the race they danced again & at 2 P.M. disbanded for lunch. During the last dance bread & apples were showered over the dancers by the squaws from horseback.

The squaws, gorgeously dressed, were well mounted & fairly good riders were a spectacular feature of the day. The small children were usually held in a shawl on the front or back end of the saddle or sometimes on both ends.

Some little races & dances took up the afternoon & the Big Medicine Dance was prepared for.

The Medicine dance was to begin in the evening but did not really begin till 11:30. It lasted till 3 P.M. or nearly daylight. It was in the big circular like circle surrounding the Medicine Tapes.

This circle 100 feet across, was made of wet pine boughs set





up each way against a top rail forming an inclosure about 6 or 7 feet high & thick enough to support most of the wind. At the far end of the corral opposite the gateway the big tapes, 20 feet wide & 20 feet high held the singers & drummers & as many people as could sit around the sides, including 4 squaws on the side opposite the ~~women's~~ side of the corral. A fire in the tapes & 8 around the edges of the circle kept all light & warm, & were constantly replenished from a big pile of pitching nut pine wood outside.

The men came in early & sat or lay or stood around the fires till time to begin. The squaws came in & sat around the fires on the left side till the music got to their toes & then went out & danced in groups alone. The music seemed to be mainly by 4 or 6 old men at the far end of the tent, sitting on the ground, singing & drumming on some dull sounding drum & rattling in the bells. The music was a chant, as weird and strange



as the whole seems, but it went to  
your toes as effectually as that of  
a good orchestra - In trying to  
write it I got a queer melody.

Hā hi hi' ha hi' ya ya

Hā hi hā' hā hā' ya ya

Ah ah ah' ah ah' ah ah - guttural

Hi ii' ii' ii' high falsetto

and so on with frequent changes  
+ an occasional pause when  
the rattle lead. The time was  
perfect + formed an even  
beat for the 6 steps front, 6  
steps back of the dancers who  
stood facing 2 squares + 2  
bucks as close as they could  
without stepping on each others  
toes. In one squad the bucks  
placed a hand on the forehead of  
the his partner, or sometimes both  
hands, but usually they

danced without touching - back +  
forward - back + forward like the  
waves of the sea - a rhythmic  
swing. Probably 20 sets of 4 each  
(10 of only 2) were dancing in the  
corral at once + starting at  
different times the motions were also  
a melody - crossing irregularly.

The girls choose partners + two  
rushers go after + drag them from  
the crowd in ones or twos as the  
girls signify who they want. The  
chosen bucks hang back + go lame  
+ try to escape but are yanked  
along + placed in front of the ones  
who chose them. The girls act  
embarrassed + cover their faces with  
their hands + the boys look sheepish till  
they get fairly warmed up to the dance.  
Some are awkward + others graceful  
+ easy. The men wrapped to their  
noses in gay blankets, hats on,  
bells jingling from their leggings  
+ only fringed moccasins showing  
below, the women wrapped in gorgeous  
shawls held gracefully around their



make a beautiful as well as graceful picture in the yellow firelight under a canopy of blue smoke flame warmed smoke.

We ~~staid~~ for 2 hours & then went to camp & left them to dance out the night. We were the only white spectators - The few Mexicans were there to sell fruit, having come with wagons or burros packs from Espanola & the San Juan River valley. I noticed Utes & San Ildefonso & Santa Clara Pueblos in the audience but only the picanillas danced.

Sept. 14 - Hunted & worked till noon, then loaded up & started for Lake Tafoara - 7 miles due west. Followed up easy slope through yellow pine forest about 4 miles, over a low <sup>ridge</sup> then down an easy grade about 3 miles to the lake. The aneroid at starting read 7550 and at Lake Tafoara the same but in going over the low ridge I did not realize that we were crossing the Continental Divide & did not read the

the barometer. It was not more than 200 or 300 feet above the lake. The whole trip was through beautiful open yellow pine forest with grassy parks, long ridges & streamless valleys but no water. Juniper & nut pine grow on south slopes all the way except over the highest part of the divide.

*Artemisia arbuscula* is abundant in the parks near the divide and a patch of *A. cana* grows in a park a mile east of Lake La Jara. *Artemisia tridentata* is common in places & *frigida* all across.

Lake La Jara is an alkalie pond  $\frac{1}{4}$  of a mile long & 15 feet deep. A big dam 30 feet high has been built across the lower end to make a reservoir of the lake. Lots of ducks & geese & cranes & snipe on the lake. The forest is full of fine lumber trees & ought to be put in good shape for harvesting the ripe timbers & dead trees.

Sept. 17, Remained at the lakes shooting ducks & other birds. Migration is in full blast & many species of ducks & snipe are here, but I was surprised to find a brood of downy young of the Ruddy duck & another brood that could not fly.

At noon the horses came into camp silently & foot loose - the bell & hobble having been stolen while they were out feeding. Fearing this was only an unsuccessful attempt to run off the horses we thought best to move camp to a place where we could picket them near us, so filled our keg at the shallow lake, where the muddy water was less alkaline than at the deeper lake & came back a mile or two on the road we had come & camped in a park of the yellow pine woods. Grass & other short grass is abundant. The woods are beautiful & an undescrbed species of chipmunk lives around camp. Found a well of fairly drinkable alkalie water half a mile from camp.



Sept. 18 Sunday - Remained at camp  
and did some writing & hunting.

Sept. 19 - Started for Dulce and again  
passing the lakes turned north &  
crossing several low ridges up &  
down easy grades through beautiful  
yellow pine forest finally came into  
a long draw & followed down it to  
Dulce, for the last 3 or 4 miles  
mainly in the Upper Sonoran zone.

Averaged at camp near 7500, at the lakes  
7425, and at Dulce 7000.

While the whole country is mainly  
Transition zone the south slopes are  
generally covered with nut pine &  
juniper, especially if steep & rocky.  
The open valley around Dulce is  
mainly Upper Sonoran, covered  
with sagebrush & *Sarcobatus* & a little  
grass on the flat part that is fenced  
in. Outside the sheep & goats have  
cleared off most of the vegetation from  
valley & bare sides hills. Some juniper  
& nut pine is scattered over the  
south slopes & yellow pines come lower

to edge of valley on N.E. slopes.  
A dry creek bed runs through the valley but there is no water, no irrigation, no farming. A Mexican - Mr. Gomez - has a big herd of sheep & a fine ranch in the best of the valley 2 miles from Dulce - south.

A few Indian teepees are located in dry corners of the valley near Dulce and following down the dry draw we passed a dozen or so empty little one room log houses with usually a brush tower over the doorway. A few loads of Indians were seen returning from the dance, but few had returned to their houses. None of these places had fields or even pastures near. The only water was in wells or holes dug in the draw, usually at a long distance from the houses.

A few horses were seen along the draw. The grass is fairly good most of the way at a distance of 3 or 4 miles from water. Sheep have cleaned it all off near water places.



## Dulce to

Sept. 21. Packed & shipped specimens  
& sent reports & left Dulce at 3 P.M.  
for Horse Lake. Went about 7 or 8 miles  
and camped under yellow pines with  
good grass for the horses and  
a pool of alkalie water not far  
away. Camp up hill all the way  
with easy grade but poor road.  
Anemoid at Dulce read 6900 which  
is approximately correct, at camp  
it read 7400.

Followed open valley most of way  
but yellow pine covers the ridges on  
both sides. Sharp bore across the  
country bare for the first 5 or 6 miles,  
then a little grass is found & at our  
camp fine grama grass covers  
the ridges. Pools of alkalie water  
stand holes along the gulches  
but no running water or good water  
was seen.

The country is mainly Transition  
Zone with lots of good pine timber.  
Nut pine & juniper ascend but  
slopes at lower end of valley.  
Pseudotsuga is in cold gulches.

Sept. 22 Camp to Horse Lake

Barometer at camp read 7600 and at Horse Lake 7800, 5 or 6 miles, - mainly up gentle grade through open valleys & parks. Yellow pine & oaks etc on ridges.

Apparently Horse Lake is on the continental divide with about 15 feet elevation on each side of it. It is in a break of the ridge which runs 200 to 500 feet higher. A big open valley with excellent grass opens out on the North & west sides of the lake. Lots of Indians are camped in the valley in tipis & their herds of horses are running in the valley. Water stands in tanks from late rains & is good.

The lake is half a mile long & quarter of a mile wide. The water is a few inches to a foot deep, or probably deeper in the two ends. It has been 6 or 8 feet deeper within a few years & the lake twice its present size. The water is very alkaline & scarcely drinkable for horses. The shores are flat with few trees. Lots of ducks & geese & birds on the lake.



Horse Lake to Chama River.

Sept. 23 - Rained hard in forenoon so we did not break camp as we intended. Instead took a horseback trip around the valley & over the high ridges & through the timbered gulches. Found lots of aspen groves & dense thickets of choke-cherry, oak & *Pseudotsuga*. The mts. to the N.E. begin to show fresh white caps & it seemed cold & sharp after the rain.

Sept. 24 - Started at 9:30 for the Chama River near the saw mill & reached it at 1. Arrived at camp 7800 at river 6850. Came most of the way through beautiful open yellow pine wood & grassy parks, but for the last 3 or 4 miles through mainly juniper & nut pine ridges with the ground eaten bare by sheep. The late rain has filled pools all along but left the woods muddy & slippery. The Chama river is high & muddy, but we got a lot of good rainwater from rock pools. Camped under *Populus angustifolia* on river bottoms a mile above the mill.

## To Stinking Lake

Sept. 25 - Found it was Sunday but had to go in to Tierra Blanca for supplies & a new man. This took most of the day.

Sept. 26 - Hunted up in the canyon in forenoon without much success. Packed up in P.M. & drove down to El Vado, then west to Stinking Spring Lake, about 7 or 8 miles. Aneroid at camp read 7200 on starting which was 400 feet higher than usual. The same at El Vado + 7700 at Stinking Lake. The lake is probably not over 7500 feet.

Like Boulder + Horse lakes it is merely a basin in the summit of the divide. The rim east of the lake is probably <sup>15</sup> feet above its level, that to the west ~~a little~~ <sup>several hundred feet</sup> higher. There are at least 3 outlying ponds besides the main lake + some of these are deep + permanent, with trees around shore. The main lake is probably 4 miles long, crooked + dividing in 3 nearly separated bodies.



Great numbers of coots & ducks are living quietly in the lake & there are young Ruddy's & half grown coots & I think immature red heads. The tule borders offer good breeding grounds for ducks, coots, rails, marsh wrens & redwing blackbirds, all of which are common.

The water in the small lake near our camp is up to my neck just out of the tules & I don't know how much deeper out in the middle. The bottom is covered with wild celery which the coots & redheads are constantly feeding on, diving for it or picking it from the floating mats on the surface that have been brought up. Their stomachs contain little else.

The red heads are delicious but the coots, tho' fat, are still flavored more with coot than celery. They are fairly good but still rank.

The water is very cold - my last swim, Oct. 3, for a red head out as far as I could kill it with the shot gun was in water close to 32°, after hard frosts.

~~Sept 30~~

~~Oct 30~~

Sept

## Stinking Lake

Oct. 30 - Took a horse & went 8 or 10 miles west of the lake but did not reach the divide - Came back over one of the highest ridges where I could see over the whole western part of the reservation. The top of this ridge was 7900 feet and I could see nothing much higher in any direction on the Reservation. The Mts. to the north, in Colorado are getting solid white with snow & look cold. That pines & junipers run nearly to the tops of ridges on both slopes, so there is a pretty complete mixture of Upper Sonoran & Transition zones. This is also shown by *Perodipus*, *Perognathus*, *Oryzoborus* & *Lepus texianus* at the lake. Still the dominant species are Transition over the reservation. The yellow pine timber is not so good to the west as farther north.

Came back around the south end of the lake, & saw 5 Canada geese in one of the arms. Several apparently deep arms of the lake at the south end are full of red heads & coots & other ducks.



To El Vado + south

Oct. 3. - Broke camp at Stinking Lake + came down to El Vado, got mail + supplies + then started south for Gallinas Mts. For about 10 miles we traveled over barren, sheep eaten sagebrush valley with no water, no grass, + almost no live vegetation. The escarpment to the west is covered with timber + in one place we crossed a juniper + sent pine ridge only to come back into the valley of another dry wash. About sundown we found a muddy rain pool + watered the horses + filled our keg + went on a mile or two to the first good grass we have seen ~~to~~ since leaving El Vado + camped at the west base of a pine covered peak, called on the old land office map Gallinas Peak. We were just on the edge of the sheep range with a big flock half a mile back of us. But the grama grass is tall + thick + good.

Aneroid at El Vado read 7000 feet, at camp 7200, but only 7100 the next morning.

## To Gallinas.

Oct. 4 - Traveled all day in a southerly course over rough roads and reached Gallinas town at sundown - Camped near town - came about 20 miles. Followed valleys between tilted mesas with most of the way with an escarpment cliff of sandstone on our right varying from 500 to 1000 feet high & long timbered slopes running up to the left and forming the same kind of escarpment wall to the Clama River farther east. The whole country is in layers of sandstone, gumbo, shale, etc. - tilted up to the east. The breaks make narrow valleys where the softer strata have disappeared. Generally the soil is sandy, but in places it is gumbo. There was good grass all along, no sheep, & little stock of any kind. No water except in rain pools & a few springs or two until we reached a big arroyo about half way where a little water was running in places on the broad sandy bed. We lunched



here. The grass is big & untouched  
tho a few cattle were seen & a few  
littl Mexican jacals were seen along  
the arroyo. Most of our road  
was through sagebrush valleys  
ranging from 7000 to 7500 feet  
in altitude, but in one place, a  
mile or two after starting we crossed  
a beautiful yellow pine ridge & in  
several places we traveled through  
juniper & nut pine country. We  
could see Douglas spruce along the  
cold sides of the escarpment &  
extensive yellow pine forests covered  
the ridges on both sides of us.  
I should say half the country is  
yellow pine transition, the other half  
nut pine & sagebrush Upper Sonoran.  
Am trying to wrap the zones &  
trees in the land office map but  
find the map gives little idea of the  
country.

Gallinas town is a Mexican settlement  
of a half dozen little adobe houses  
& the store & P.O. are in another little  
adobe half a mile beyond. The few little fields  
of grain would not make good crops.

To Rio Puerco & Gallinas Mts.

Oct. 5.

Found that we could not follow up the Gallinas River, a tiny sandy hollowed creek of red water, but had to keep around the east side of the mts. to the south end of the range. Passed through Capulin, another little Mexican settlement & cluster of half a dozen adobes. Then over to Coyote Creek & across the Puerco River and camped at sundown at the south end of the main range. Another and apparently higher & partly detached range to the south seems to have no name unless it is called a part of the Gallinas. The main range around which we circled, is called on the old land office map the Mesa Prieta & is really like a great rounded mesa. There is no peak & it is covered densely with timber, spruce pines & aspens. Now the aspens are bright yellow & give their color to fully half the surface of the mountains, mixed in with the black spruces.



The base of the range is all yellow pine forest, open, clean, grassy, & beautiful. Our road for 20 miles along the east side is mainly through this virgin forest, which strange to see is scarcely mutilated by man. Even fire has done little to harm it. The trees are thrifty, large, clean and beautiful. It compares well with the San Francisco Mtn. forest before the mills were started. and it covers an extensive area. The plateau east of the Gallinas River is also apparently well forested, while the valleys & canyons are covered with nut pine & juniper. There are lots of open, grassy parks but no water for long distances & little stock. Almost no sheep. In places the young pines are coming in in abundance.

We found a small settlement on Coyote Creek, but crossed the Puerco in the canyon above Remedios.

Gallinas Mts.

Oct. 9 - Rained all night & in morning the top of the mts. above us showed a white blanket - Started early for the top & tramped all day, reaching the highest part of the flat topped Mesa Prieta at 10400 feet or the highest part I could find. Five miles farther N.W. they seem to be a little higher. A good trail of snow covered all the open spaces on top but we did not reach the ground under thick spruces. The forest over the sides of the mts. is open, that on top is mainly dense fir & spruce & aspen. The top is nearly level with rich soil, but there is no little grass or undergrowth that efforts to burn off the timber have not been entirely successful. The trees are largely *Picea engelmannii* & *Abies lasiocarpa* with aspens mixed in. The sides of the mts are also covered with rich mellow soil that yields good grass in the open & fine, thrifty trees when not burnt.

Found no signs of game



except one lynx that I nearly stepped  
on in the thickest of the top woods.  
There is no water on top, the  
streams coming out vainly at  
9500 to 10000 feet. Found a fine  
large creek on the west slope &  
followed down it to 9000 feet, then  
around to camp over the low  
gap where the road crosses  
between this range & the southern  
extension of the Mts. at 9300 feet.  
Got a Sciurus aberti whelp -  
& a Cynomys gunisoni & a lot of  
birds but saw no trace of big  
game - deer, bear, or turkeys.

There is no mast this year in  
the mts. except a very few acorns  
& if there was any game but it  
had left to hunt food. In the  
morning while out for the horses  
near camp two large blacktail does  
came across the open gulch &  
then walked past within 5 or 6 rods  
of camp & went down the Puero  
canyon, probably going down for  
better range.

## Gallinas Mts.

Oct. 10. Crossed the Coyote Creek Canyon & followed up the east fork of Coyote Cr. to near its head on the big ridge that is a southern extension of the Mts. we are in & probably should stand as a part of the Gallinas range. No one seems to know any name for it, but the "pebitants" say "all same Gallinas." It is the best part of the range, being on a level with the mts. N.W. of us - 10400 approximately. More streams rise in this ridge & the top is beautiful park & spruce country with meadows & little lakes, but it is easily accessible to the sheep ranches all round and is eaten off bare & clean. Even the woods are so shaped out as to present bare ground & bare trunks. The timber has been burnt off as far as possible, but fortunately the yellow pines stand burning pretty well & have not been injured much while much of the higher spruce forest will not burn. This leaves



much of the forest in good condition.  
The soil is good & not much of it  
weedy so and grass would be  
knee high if left for a season.  
~~Saw~~ To the S.W. <sup>about 15 or 20 miles</sup> a large dome  
shaped Mtn. rises high enough to  
have a N.E. timberline bald spot,  
probably reaching 12000 feet. It seems  
to be connected with this ridge &  
is covered with black forest as  
is also a big ridge sweeping  
around to the west of Mesa Prieta.  
Still west of this a high, forested  
ridge runs N. & S. & is probably  
the Cijita Blanca.

The whole country offers a magnificent  
area for forest reserve, better & more  
extensive than I had supposed.

Even the canyons of the Puertos &  
Coyote are full, except along the walls,  
of magnificent yellow pines & Douglas spruce,  
the trees often 5 feet in diameter & 100  
feet high with as perfect trunks  
as I ever saw. The mesas are  
almost pure yellow pines. The tops  
of the mts. are Canadian zone

but well worth saving for the sows  
they hold + distribute in numerous  
streams on all sides. There  
is abundance of water, fine  
soil, + good timber if the country  
is ever developed beyond what  
the lazy Mexican squatters on the  
few naturally fertile + easily irrigable  
patches along the creeks care to do.  
If sheep could be controlled + the  
lumber company that is working  
its way south from El Paso  
could be headed off this would  
be a Paradise - If not it will  
soon be a barren, unfruitful  
form of Hades. If it could  
be rescued soon there is game  
enough to restock + make as  
good a game + trout region  
as there is out doors, but now  
the game is scarce.

I saw a few Turkey signs in the canyon  
+ shot 2 blue grouse on top of the ridge  
but saw no signs of deer or bear.  
Could not resist getting out my hook  
+ line + in a few minutes caught 10 fine trout  
near the head of Coyote Cr.



## to Coyote

Oct. 18: Broke camp at 2 P.M. & came back across the Ruero Canyon and down to near Coyote & camped by rain pool. Had fairly good roads & mostly down hill. Came about 12 miles. Aneroid at camp 8500, at Coyote camp 7000 feet. Most of the way through juniper & nut pine country. The bottom of Coyote Creek valley is narrow & rather barren except for the little Mexican ranches along the flat spots. Lots of water goes to waste and much more land could be irrigated & made valuable.

At one ranch we stopped for grain but could get only wheat or corn. We took the wheat & bought some very good apples.

Did not camp till dark so could not set re-traps.

Found lots of *Opuntia arborescens*, & 2 flat species of *Opuntia*, *Artemisia parvifolia* & a little *Stemmatococcus* & other Upper Sonoran plants in canyon.

## Chama Canyon

Oct. 12 - Started early & came across to Campone Cr., then down it to Chama River and down it to about 5 miles above Abiquiu, where we camped in the canyon. The road is washed out in many places & we had to stop & build new grades in & out of the gulches in several places. Some sandy strips were heavy and travelling was slow. Were surprised to find an old railroad grade down through the Chama Canyon. It has been washed out in many places & filled with boulders from above in others. A man told us it was built in 1880. The <sup>wagon</sup> road was also washed out in places but had been partly repaired. Found no grass for our horses as the canyon has been shaped out.

Camp in morning 7100, Chama River 6150 - Camp 6150.

The Chama canyon is narrow & so far uninhabited.



## Abiquiu.

~~Oct~~ 13. Soon after leaving camp we came out to a wider part of the valley where canyons begin & a few placer washings are located. Then crossed the river and followed a ranch country to Abiquiu, to which we descended, then down the open river valley about 10 miles and camped on a wide, sandy slope of the valley by a rain pool. Remained here a day & a half collecting & writing reports.

Below the Chama Canyon the soil is very sandy the roads deep & soft. Sand blows into great dunes & drifts and the broad side washes are beds of sand & stones. The bordering hills & cliffs are mainly sandstone or drift or barren bedrock formations.

All but the valley bottom & much of it is covered with wet pine and juniperus monosperma. The blue juniper (placida?) has disappeared. When not eaten here the valley

yields good grama grass  
and such Upper Sonoran plants as  
*Lycium pallidum*, *Sarcobatus*, *Atriplex*  
*canescens*, *Forestiera neomexicana*?  
*Eugubrusk* & *Bigelovias* with great  
abundance of *Opuntia arborescens*,  
*O. engelmannii* no. 911, *O. polycantha*?  
and *Yucca glauca*.

The little Mexican ranches along the  
river bottoms include only the patches  
easily put under irrigation. The high  
water has recently washed out many  
of the fields & covered corn & alfalfa  
with sand. The Chama river bed is  
so wide & flat & sandy there is little  
hope of forming reservoirs here, but  
swampy ones could be made in  
the canyon above. A good deal of  
adobe soil crops out in places &  
could be used for ditch & reservoir  
lining.

At Abiquiu Mr. Grant who has  
the store took us into his orchard  
where some of the most luscious peaches  
& apples were. Some trees were still on the  
trees. His grapes & plums had all been gathered,  
but he has proved what this soil & climate can do.



## To Esparola

Oct. 15 - Started at noon & travelled slowly down the valley through deep sand. Occasionally we would strike hard ground & good road for a little way across a clay point, but in every gap the sand has blown into the valley or washed down or drifted up from the river bed till the roads are very bad.

Very few ranches were seen until near the mouth of the Chama where they are all along the river flats - little Mexican or Indian patches & gardens and orchards. The adobe houses are now gay with strings of chili & piles of corn & squashes adorn the house tops & door yards. Little stacks of alfalfa & corn stalks cap the barns or sheds, but all is on the smallest scale of poverty, mettle to mouth living. Some day this part of the Rio Grande valley will be a rich & closely cultivated region.

Camped at the ranch of Francisco R. Cervera 3 miles above Esparola who proved to be an uncle of our campman, ~~San~~ Fernandez.

## Esparola

Oct. 16. Sunday morning.

Waited till noon to read & write letters, then drove down to Esparola and 2 miles below to the Santa Clara Pueblo & camped just above the Pueblo on Santa Clara Cr. Saw Mr. Fros. S. Bogies at the Pueblo, but can do nothing about storing outfit till tomorrow.

Gaut set a lot of traps.

The Santa Clara Pueblo is too civilized for much interest. The houses are mainly one, or a few 2 stories high, with doors & windows & in general not very different from the Mexican adobes. The people are bright with pleasant faces, but less picturesque than the Tass. Some dress in white man's clothes & I think many are mixed with Mexican.

Mr. Bogie's wife is a Santa Clara.

Mrs. True, the teacher says the average expenditure of the Santa Claras per capita per year is \$25. She has taken a careful census for two years with practically the same result.



## Espanola

Oct. 17 - Went across river to see about wintering horses but to no purpose - A cold night with ice on water in morning.

Oct. 18 - Broke camp & went into town and staid with Mr. Stafford.

Stored outfit in his shop and arranged to have him take horses to Colorado for winter.

Oct. 19 Packed up & left Espanola at 4 P.M. & reached Santa Fe at 6. Was surprised to find pine grass between the Rio Grande & Santa Fe and juniper & nut pine country all the way. Saw wounds & holes of *Sipodampus spectabilis* halfway from River to Santa Fe.

Got supper at Palace Hotel & took 9 P.M. train for Lamy, arriving at 10:30. Mrs. Bailey took seat bound train at 12:30 & I had to stay over till morning for train to Albuquerque. All trains are late on account of wash outs from late rains.



## To Albuquerque

Oct. 20. Found the country around farming nut pine & juniper hills, rather barren. A little to the west the middle of the valley opens out & is grassy or barren. At the little town of Cerrillos we are near the north end of the Tuzito Mts. which are steep peaks nearly as high as the Sandias with tall timber of some kind over their tops.

A trip from Espanola down to Cerrillos, then into the Tuzito Mts., then to the Sandias & Mangas is worth making.

At the Rio Grande we strike the pueblos & farming country all along. Lots of fields of alfalfa are just being cut but most other crops are gathered. The cottonwoods along the Rio Grande bottoms are a golden belt. Large ponds of overflow water stand on the low parts of the river flats & ducks are thick on some of these.

Reached Albuquerque at 1:30 P.M. & have to wait till 2 A.M. for train to El Paso.

## To El Paso

Oct. 21, Left Albuquerque at 4 A.M. with a hard frost on the grass & ice on shallow ponds. A little scattered mesquite is the only trees of Lower Sonora. Just upon reaching Pecos the first patch of Larrea was seen on south slopes of a black lava mesa & some Baccharis in side gulches of valley & a few bushes of Prosopis pubescens.

At Socorro Larrea becomes common over black mesas, both mesquites large & common on flats. Rhus microphylla and Ephedra trifurcata; common & Baccharis abundant & so all along to San Marcial.

The San Mateo Mts. west of San Marcial are high with yellow aspens over the top. A patch of aspens also appears on old Baldy of the Magdalena. The Pecos Mts. are low & bare. The Black Range is too far to the S.W. to show more than a heavy black ridge. The near by La Orotuna are a low, bare ridge without timber. Yucca radiosa grows over this top. The Caballos are another low, bare range without timber.



The San Andres on the east are mainly barren but black patches of timber (apparently nut pine & firs) appear on this higher parts.

The mesa is a grassy plain with numerous lakes in the depression at present. *Yucca radiosa* is scattered all over it & some of the thick leaved *baccata*, or form of it, is seen. *Taraxacum* is common in places but nowhere on north slopes & mainly on black lava soil.

Engle is a little town on the plain with stores, saloons & hotel.

Back to Rio Grande at Rincon where a decided change from the valley above is noted. The cottonwoods have not begun to show yellow. There seems to have been no frost. Alfalfa & all vegetation is fresh & green. Lower Sonoran plants exclude all others. Apples still hang on the trees at Las Cuevas & Mesilla Park. Reached El Paso at 7 P.M. A beautiful ~~soft~~, warm, moonlight evening with a southern softness.

## El Paso

Oct. 22 - Went to the 416 McGoffin Ave where Mrs. Holm used to keep the nicest boarding house in El Paso but found it had been sold to Capt. Bell, who has a good Chinaman to run the house, so staid with them. Spent most of the day getting supplies for present & next years traps.

Oct. 23 - Sunday - Finished back reports & took evening train for Valentine, arriving at 1 P.M.

Oct. 24. In forenoon tramped over plain & took photos of *Yucca radiosa* & *macrocarpa*. One of the latter has 5 fairly complete nests of *Corvus cryptoleucus* & traces of 3 older ones, the other has no fresh nests but traces of fully a dozen old ones between the whorls of leaves.

Longspurs & antlers are common in large flocks mixed. Had only rifle so could not shoot longspurs but found feathers by post where hawk had eaten one lately.

Saw Otis Finley & talked bears with him.



## To San Antonio

Oct. 25. Left Valentin at 7:30 A.M. + reached San Antonio at 11 P.M.  
Snowing when we started + at Alpine there was 3 inches of snow on the ground + rapidly falling. At Minnhton no snow but raining.

Vegetation unusually rank + thick abundance of grass all along.

Many flowers out from the late rains *Fouquieria* having out.

Oct. 26 - Found athletes at the state fair at San Antonio + learned that 2 of the days were given to bull wrestling + bird talks so decided to stay.

Oct. 27 - Went up to Austin + spent the day in University + State libraries looking over early Texas literature.

Oct. 28 - Returned to San Antonio + attended bull wrestling convention.

Oct. 29. Read in Carnegie Library in forenoon - attended farmers convention in P.M. for bird talks.

Nov. 20. Left Eagle Lake at 4:30 P.M. + reached Liberty at 8:45. The country is almost entirely prairie to Richmond, + sparsely settled. Great stretches of prairie are untouched + unimproved.  
Cypresses are common along East Comanche Creek.

Nov. 21. Drove over to Blair's Mill, 4 miles N.W. of Liberty, where I found Bray. Hunted in woods part of day.

Nov. 22 - Drove N.W. about 16 miles to Mrs. Carter's farm on west side of Taskington prairie and in afternoon went hunting cats with the boys. Mounds are numerous both in woods + across prairie.

Nov. 23 - Hunted from before daylight till after dark but did not get much. Caught one coon in morning.

Nov. 24 - Went to Cleveland in P.M. with Prof. Bray. Got camp supplies + returned.

Nov. 25 - Fixed up outfit for a camp trip - took a few photos.



Nov. 26. Left Mr. Ab Carters place at 9 A.M. and crossed Zackington Prairie and continued east through heavy timber to Golors Lake near the Trinity River. Camped at lake near widest place & hunted & set traps till dark. Pine & hardwood timber covers the sandy land between prairie & river bottoms, hardwood & cypress covers the black land bottoms.

Both sets of timber are dense & tall and full of magnificent trees.

Half way through the pine timber I found 2 ivory billed woodpeckers bounding & calling near the top of tall dead pines & shot the male - saw one other but it escaped. At sundown near our camp I found 3 on a tall dead cow oak which has a large hole about 60 feet up where they evidently intended to roost.

I shot one & the other two left but were on the tree again at daylight the next morning.

Nov. 27. Caught nothing, but saw 2 of the ivory billed again. They were wild & I could not get a shot.

Their voice is a loud nasal ank, ank, ank, that at a distance sounds like a rathatch close by.

Skinned the ivory bills & a wood duck & started for Baton. Crossed the river at a ferry about 3 miles below the lake, then struck due east through more open timber & across Baton Prairie. Camped a mile out of town.

Nov. 28. Went through Baton, a new dirty oil camp & east to Escatoga another quacking oil town in the woods. The north about 5 miles to old man

Flowers place in midst of Big Thicket & arranged for use of 2 hounds.

Then went on 2 miles & camped at old oil well beside 7 miles N.E. of Escatoga. Remained here hunting in the thicket till Dec. 7.

Dec. 15 to Lone Lake.

Dec. 16. to Sam Griffins place

Dec. 17. to Escatoga again

Dec. 18. to Bragg & Cleveland

Dec. 19. to Navasota.



Dec. 16. To Houston & remained over night.

Dec. 17. Left Houston at 6:30 AM, on  
G.P. R.A. for New Orleans.

Big Thicket along all streams across  
east Texas southern La. Almost  
surrounds Beaumont & Lake Charles  
Wide prairies between streams.

Cotton, rice, & sugar cane the  
main crops. Very little fruit.  
Apples won't grow as bear, pears are  
poor & trees do not live long - are  
troubled with blight. Peaches are  
poor & trees soon die. Oranges  
do well till a freeze comes.

There has been little frost in  
southern La. as yet & the sugar  
cane crop is not nearly all gathered.

The conspicuous plants of the  
Thicket all the way to New Orleans  
are cypress, Tupla gum, Myrica  
Magnolia (Bay), Sabel etc.

Dec. 18 New Orleans via N & Z. & So.  
9:35 AM.

Same old Big Thicket plants all  
along on bottoms, Myrica & Bay  
abundant & conspicuous, Big marshes,  
open woods of Pinus taeda & palustris.

Oranges ripening on trees, banana  
trees not pasted.

Mainly poor white sand and  
open pine woods from Bay St. Louis  
& Mobile - some <sup>small</sup> swamps along  
streams - After passing Mobile  
we go for nearly 100 miles through  
swamps & across many streams &  
lagoons. These swamps are  
dense jungles of cypress, bay,  
Tupla gum, saw gum, Myrica.  
Sabel & vines - a red bellied  
Smilax being abundant & passing  
vines common.

Later we strike into sandy  
pine woods again, some fine  
forests of long leaved pine & mostly  
forested for turpentine. At points  
the country is somewhat hilly &  
ridged & the timber mixed pine  
& deciduous trees -



All of these southern woods are  
ben egypt pines, live oaks, pin oaks,  
magnolia + evergreen shrubs.

At Georgiana the country is  
gently rolling + ridged, of red sand  
and with good timber of pines  
taeda, echinata + leae polluetris,  
mixed with deciduous trees.

Extensive woods, few farms +  
little towns, no fields or crops.

About the same to Greenville  
where it grew dark, and apparently  
the same to Montgomery.

Zaos Indian Names of trees -  
 for Sun Elk.

<i>Pinus ponderosa</i>	-	wey enéma	
<i>Pinus flexilis</i>	-	pah wey sana	- water pine
" <i>aristata</i>	-	kham wheéna	- lion's tail
" <i>edulis</i>	-	tah wéna	- name of the nut
<i>Pseudotsuga</i>	-		
<i>Abies concolor</i>	-	uh pah yea mé na ma	- hair leaved spruce
" <i>lasiocarpa</i>	-	kui pah mu nah	- soft bark spruce
<i>Picea engelmanni</i>	-	kui koa wáhna	- bear bark spruce
" <i>mariana</i>	-	Pah kui wah na	- water spruce
<i>Populus tremuloides</i>	-	nau téna	-
" <i>angustifolia</i>	-	tu sa' na	-
<i>Quercus gambeli</i>	-	Qua slá na	-
<i>Juniperus monosperma</i>	-	ku'na	- red cedar
" <i>flaccida</i> ?	-	ku pah há na	- gray cedar
" <i>communis</i>	-	pah hwa wa léne ma	- water cedar medicine
<i>Asir glabrum</i>	-	pah tu tsé coo una	- white willow
<i>Salix cordata</i>	-	Cah nea tsá na	- Buffalo willow.
" <i>nigra</i> ?	-	Eah tsá pah yín na	- Red willow, name of tribe
<i>Prunus plum</i>	-	Poo loo loó nah	-
<i>Alnus incana</i>	-	Zoo loo loo nah	-
<i>Betula occidentalis</i>	-	Zoo hua' u nah	-
<i>Ribes leptanthum</i>	-	pe huel huéna	- mad ache berries
" <i>diversum</i>	-	caa pah nue too' nah	- bear water berries
Raspberries	-	teel huéna	- gravel berries
Strawberries	-	tsé ha teel huéna	- rat berries.



# Zass Indian Numerals

(From Sam Elk - Manuel Mondragon  
Zudletu)

- |                   |                  |
|-------------------|------------------|
| 1. Waina          | 50. Punua te     |
| 2. Waina (wi'ena) | 51. Punua tewana |
| 3. Pahua          | 60. Matsi te     |
| 4. Weana          | 61. " " wana     |
| 5. Punua          | 70. Zau te       |
| 6. Matsi          | 71. " " wana     |
| 7. Zau            | 80. Whele te     |
| 8. Whele          | 81. " " wana     |
| 9. Whia           | 90. Whea te      |
| 10. Zern          | 91. " " wana     |
| 11. Ze wana       | 100. Ze te       |
| 12. Ze weana      | 200. We ta te    |
| 13. Ze pahua      | 300. Pahua te te |
| 14. Ze wean       | 400. Wean te te  |
| 15. Ze punua      | 500. Punua te te |
| 16. Ze matsi      | etc              |
| 17. Ze tau        | 1000 Ze te te    |
| 18. Ze whele      |                  |
| 19. Ze whia       |                  |
| 20. Weta          |                  |
| 21. Witawana      |                  |
| 30. Pahua te      |                  |
| 31. Pahua te wana |                  |
| 40. Wean te       |                  |
| 41. Wean ta wana  |                  |

- |                    |   |                    |                        |
|--------------------|---|--------------------|------------------------|
| Rattlesnake        | - | Pah tau uua        | -                      |
| Lizard             | - | Nah tu uua         | - Sceloporus graciosus |
| "                  | - | Pah tu' tau lu uua | Cnemidophorus          |
| Horn toad          | - | Coa tal' ha la uua |                        |
| Frog               | - | Hue wa ta la uua   |                        |
| Turtle             | - | Isa lu' na         | - Rattle box           |
| Crotaphytus halyi, | - | Coa tal' wa se eva | -                      |

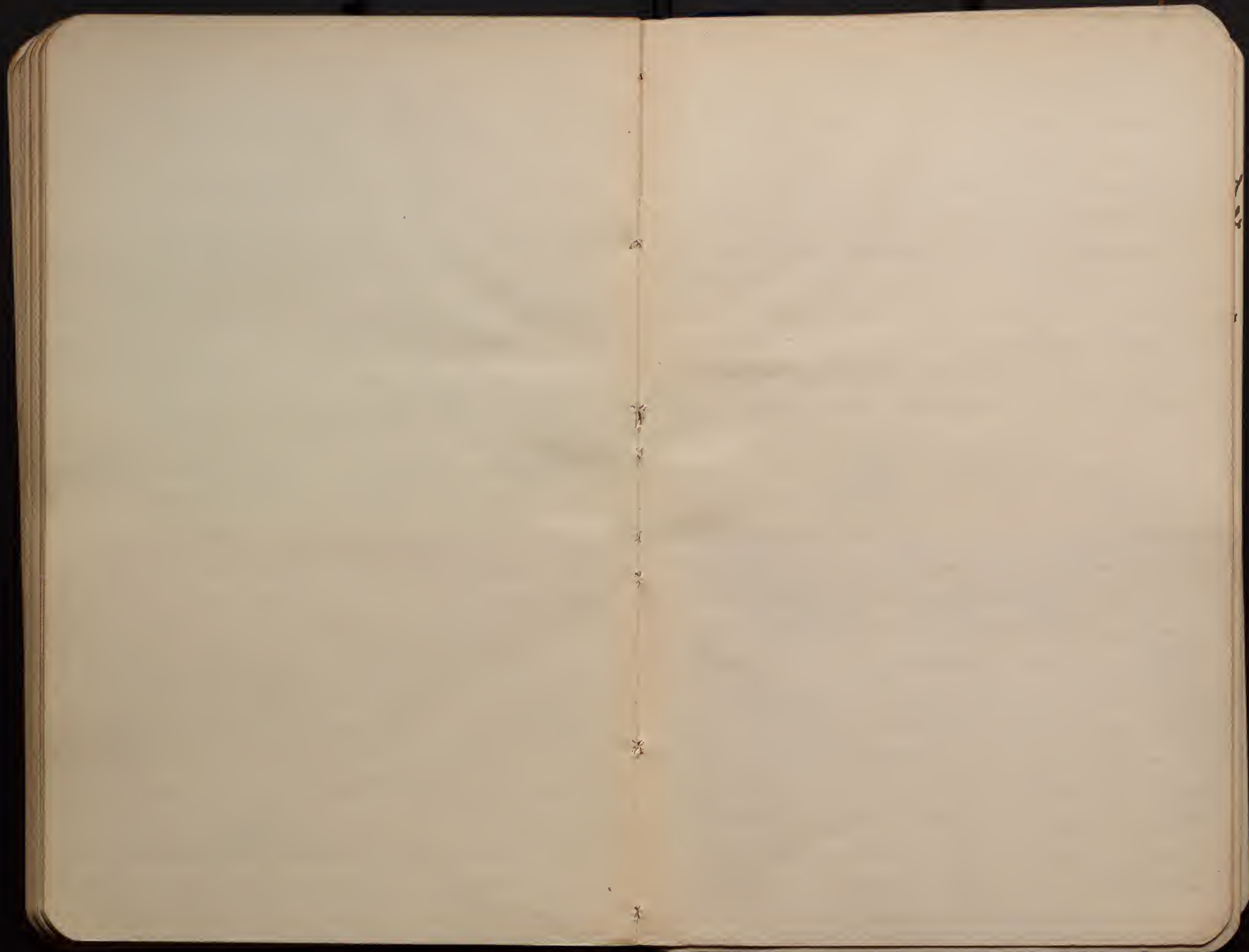
Quita pear na na wa - Red earth Mtn.

Abies lasiocarpa or arizonica = Kui pah mu nah -  
means soft bark.

Picea engelmanni - Ku' koa wa nah, bear bark spruce

Picea pungens - Pah kui wa nah = water spruce.

(Nah ku' na - leaves of all colors  
the man teaching his boys to dance. see photo)





Taos Names of Mammals

<i>Odocoileus hemionus</i>	-	Pah' va	-
" <i>virginianus</i>	-	Pah' hu' wa ra	- <del>stags</del> deer winter followers
<i>Cervus</i>	-	<del>Tah</del> riva	- spotted, when young
<i>Caracac</i>	-	Cah nu' na	-
Buffalo	-	Zah' ah' va	-
Antelope	-	Pean g'ia na	- mountain sheep.
Ovis	-	gud na	-
Common sheep	-	Bela qua' va	- wood pitch squirrel
<i>Sciurus aberti</i>	-	Izu wa la ana	- from his voice
" <i>monivernus</i>	-	Mu yuna	-
<i>Spermophilus lateralis</i>	-	Qua wheu na	-
<i>Eutamias</i>	-	Ki <del>sa</del> riva	-
<i>Cynomys gunnisoni</i>	-	<del>Oo</del> Pah ka che wa	- ditto's mouse
<i>Sorex</i>	-	Pah <del>hi</del> lena na	-
<i>Microtus</i>	-	Pah' na	- Pan upna = earth
<i>Thomomys</i>	-	Hana	- thief
<i>Neotoma orolestes</i>	-		
" <i>fallox</i>	-		
<i>Peromyscus</i>	-	Kla tee ha' va	- cactus mouse
<i>Spermophilus grammurus</i>	-	Ko' ah ke va	- black prairie dog
<i>Perodipus</i>	-	Tua pina	- jumper
<i>Perognathus</i>	-	Mum po' si wa	-
Beaver	-	Pah ya' nah	- water -
<i>Fiber</i>	-	<del>Pah</del> hah nu upna	-
<i>Lepus tairdi</i>	-	Ana wa pe wiva	- Spruce rabbit
" <i>pinetis</i>	-	Pe wiva	- rabbit
" <i>capensis</i>	-	Cah pah tuna	- white jack rabbit
" <i>texianus</i>	-	Cah tua pua na ana	- black rumped jack rabbit

		a	
Dog	-	Tau g'ia na	- Tau la ana = pup -
Cat	-	Qua luwa	= little dog
	-	Muse ana	- from voice
<i>Felis concolor</i>	-	tham' nerah	- hiding -
<i>Lynx</i>	-	pean' musana	- mountain cat
<i>Vulpes macrura</i>	-	sal pun e ana	- little black coyote
<i>Urocyon</i>	-	too wa teule ana	- little yellow coyote
<i>Coyote</i>	-	too-w'ana	- for his voice
<i>Canis estor</i>	-	too wa ta la ana	- little blue coyote
<i>Canis griseus</i>	-	Ca le' va	- sater
<i>Procyon lotor</i>	-	Pa' su di va	- water dog
<i>Taxidea</i>	-	Ca'ld na uwa	-
<i>Mephitis</i>	-	Cue u la' na	-
<i>Putorius</i>	-	Ha' na' usia	-
<i>Ursus americanus</i>	-	Cua <sup>(black)</sup> pua' ana	- black bear
"	-	Izla cuena	- <sup>(climbs trees)</sup> (wood bear)
<i>Ursus horribilis</i>	-	Cua <sup>(gray)</sup> pah' ya' ana	- Gray bear
Fishes	-		
Lutra	-	Pah hua pi' va	- water
<i>Lutreola</i>	-	Sla mi' na	- tobacco bag
<i>Mustela</i>	-		
Bat	-	Tsi' le yak ah' na	- from his squeak
Butterfly	-	Tsiddle mi' ya ah' na	-
Fiber	-	Pah hah nu u' ana	- water
<i>Ochotona</i>	-	Tsa' ka na	- from his voice
<i>Erethizon</i>	-	Sa' na' na	-
<i>Arctomys flaviventris</i>	-	Pean che ha' na	- mountain mouse

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